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Diversity of Alticinae in Oaxaca, Mexico: A preliminary study (Coleoptera, Chrysomelidae)[1]

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Abstract

This is a preliminary study of the diversity of the Flea Beetles (Alticinae) of the Mexican state of Oaxaca based on fieldwork by the author in 1991, 1997, and 2010, the literature, and specimens in several institutional collections. The number of genera and species for Mexico as well as for Oaxaca increased significantly from previous studies. There are now 625 species in 90 genera recorded from Mexico with 275 species in 68 genera recorded from Oaxaca. There are 113 species known only from the state of Oaxaca and another 38 species known only from Oaxaca and the surrounding states. Oaxaca has a relatively high diversity as well as a high percentage of endemism. This study also demonstrates the effects of how even a small amount of fieldwork together with extracting specimen data from institutional collections can significantly increase the total faunistic and diversity knowledge of an area. A complete list of the genera and species known from Oaxaca is included.

Resumen

Este es un estudio preliminar de la diversidad de los Escarabajos Pulga (Alticinae) del estado mexicano de Oaxaca basado en el trabajo de campo por el autor en 1991, 1997, y 2010, la revisión de la literatura y el estudio de varios especímenes en colecciones institucionales. El número de géneros y especies para México y para Oaxaca aumentó significativamente a partir de estudios anteriores. En la actualidad hay 625 especies en 90 géneros registrados para México con 275 especies en 68 géneros registrados de Oaxaca. Hay 113 especies conocidas sólo del estado de Oaxaca, y otras 38 especies conocidas sólo de Oaxaca y los estados circundantes. Oaxaca tiene una diversidad relativamente alta, así como un alto porcentaje de endemismo. Este estudio también demuestra como una pequeña cantidad de trabajo de campo junto con

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la extracción de datos de especímenes de colecciones institucionales pueden aumentar significativamente el conocimiento sobre la fauna total y la diversidad biológica de una región. Se incluye una lista completa de los géneros y especies conocidas de Oaxaca.

Keywords
Mexico, Oaxaca, diversity, Coleoptera, Chrysomelidae, Alticinae, endemism, fieldwork, collections

Introduction

Although Mexico is the fourteenth largest country in the world (ca. 2,000,000 km^2) it is the fifth most biodiverse country and is one of the 25 biodiversity hotspots (Mittermeier 1988; Mittermeier et al. 1999).

Oaxaca is one of the most mountainous and rugged areas in Mexico and it is geologically complex as well (Ferrusquía-Villafranca 1993). Its southern and central areas are composed of the Sierra Madre del Sur mountain range, one of the major ranges in Mexico. However, the mountains of Oaxaca are actually composed of several less extensive ranges. The primary one is the Sierra Madre de Oaxaca that is a mountain range just north of Sierra Madre de Sur, but converging with it. It begins in the state of Veracruz at Pico de Orizaba and extends in a southeasterly direction for 300 km until reaching the Isthmus of Tehuantepec. Mountain peaks in the Sierra Madre de Oaxaca average 2,500 m in elevation, with some peaks exceeding 3,000 m. The Sierra Madre de Oaxaca also can be split into many smaller sierras, each with unique environments and human inhabitants, including Sierra de Juárez (this study area) and Sierra Mazateca (to the northwest) (Maps 1, 2). Of special interest to this study is its home base in Ixtlán de Juárez, a mountain community for the environmentally aware. Here, locals have developed a special eco-tourism project where guests are taken on guided tours through the area's attractive forests. Within the same hour, you can experience a hot, dry climate, and then ascend the mountains to a cold damp region (Map 3). The Sierra de Juárez is a range of mountains in Oaxaca state, Mexico between latitudes 17°20'–17°50'N and longitudes 96°15'–97°00'W, with an area of about 1,700 km^2. The range is separated from the Sierra de Zongólica to the north by the Santo Domingo River, flowing through the Tecomavaca Canyon. It stretches south-eastward to the Cajones River and the Sierra de Villa Alta. The mountains are in the district of Ixtlán de Juárez in the Sierra Norte de Oaxaca region. It is named after Mexico's only indigenous president, Benito Juárez, who was born here in 1806 in the small village of San Pablo Guelatao (Map 4). These mountains climb from 500 m to 3,250 m, with many large and deep ravines. They are formed of folded sedimentary rocks with series of younger granitic intrusions that date from the Palaeozoic to Cenozoic, with the majority being Mesozoic. The climate is subtropical in the lower regions and temperate and subhumid above 1000 m, with average temperature from 16°–20° C. There is regular frost in the higher mountains. Annual rainfall, fed by the trade winds from the Caribbean Sea, ranges from 700 mm to 4000 mm or more. The Valle Nacional River originates in the Sierra de Juárez, one of the major tributaries of the Papaloapan River (Map 4).

Map 1. Mexico and southern USA, depicting the position of the state of Oaxaca.

The Sierra de Juárez is one of Oaxaca State's wettest areas and richest in forest diversity, with perhaps 2000 of the 8000 or more plant species that are found in the state. It is mostly covered by montane cloud forest, but includes tropical evergreen forests and forests of pine, pine-oak and oak. The cloud forest forms a band from 1,000–1,400 m in height up to 2,250 meters along the northern and eastern slopes. The cloud forest climate is cool (14°–20° C) and has mean annual rainfall that exceeds 2,000 mm and is sometimes much higher. The dominant trees are 20–30 m tall and include evergreen and deciduous species, palms, tree ferns, heather shrubs, vines, and moisture-loving herbs (the facts above were taken from Wikipedia).

As evident from Maps 1 and 2 Oaxaca is positioned in a rather unique biogeographical part of Mexico and, in fact, Central America. It is bordered north and west by the rather dry and deep Rio Balsas (an almost west-east) transect of the state of Guerrero. To the north and east is the southern-most aspect of one of the other major mountain ranges of Mexico, the Sierra Madre Oriental, at that point in Veracruz. The eastern most part of Oaxaca spans the Isthmus of Tehuantepec that borders the state of Chiapas. The Isthmus of Tehuantepec is not mountainous and is distinctly the narrowest part of Mexico where the states of Oaxaca, Veracruz, Chiapas and Tabasco converge. This geographical con-

Map 2. Oaxaca with the surrounding states and demonstrating the strong geographical constriction of the Isthmus of Tehuantepec.

striction certainly has an effect on the diversity and distribution of the fauna and flora. Presumably to the south the biodiversity is predominantly Neotropical.

For Mexico's phanerogamic flora the highest diversity is found along a belt originating in Chiapas, traversing Oaxaca, and continuing to central Veracruz in the east and to Sinaloa and Durango on the west and cloud and evergreen forests are the most diverse per unit area, endemism is prevalent, and Oaxaca has a higher number of species than any state (Rzedowski 1993).

Llorente-Bousquets et al. (1993) report that based on butterflies (Papilionoidea) the two most species-rich areas in Mexico are the Sierra de Juárez (the area of the present study) and Los Tuxtlas (Veracruz), with the highest numbers of species in Oaxaca (40), Chiapas (41), and Veracruz (41). In a survey of 20 different groups of arthropods (8,599 species), the most diverse states were Veracruz (2072), Chiapas (1306), Oaxaca (1256), Guerrero (1124) (Llorente-Bousquets et al. 1996).

The current study is part of a series of publications on the diversity of Alticinae (Flea Beetles) in Mexico (Furth 1998, 2004, 2006, 2007, 2009; Savini et al. 2001). Be-

Map 3. Google Earth view of the Sierra de Juárez mountains with the current study's home base of Ixtlán de Juárez and some of the collecting localities from the 2010 field trip, especially Santa Catarina Lachatao.

sides elucidating the biological diversity of Mexico based on this taxon of herbivores, it provides an example of how the historical literature, historical collecting based on specimens in institutional collections, and new fieldwork can be combined to relatively rapidly assess such diversity. Although the historical literature is a fixed entity, when more institutional collections are examined or surveyed for historical collecting records and when more targeted fieldwork is conducted (even for short periods), there is a significant increase in diversity knowledge very quickly.

Furth and Savini (1996, 1998) listed all Alticinae known from Central America with their known distribution. Furth (2004) published the first accounting of Alticinae diversity in Mexico based primarily on the historic literature as well as some specimens from collections at the USNM, a few borrowed specimens from other collections, and some from very brief collecting by the author in 1991, 1993, 1995, and 1997. At that time there were 501 species in 85 genera listed from Mexico of which 96 species in 33 genera were recorded from Oaxaca. This made Oaxaca the third most diversity state behind Veracruz (182 species) and Guerrero (124 species), and just ahead of Durango

Map 4. The Sierra de Juárez mountains of Oaxaca with the surrounding smaller mountain systems.

(87 species) and Tabasco (74 species). Because most of these data were based on very old and sporadic collecting, they were very preliminary and also may have reflected the accessibility or popularity of certain locations. Nevertheless, the biological diversity was understandably higher in most of the southern Mexican states, e.g., Chiapas, Guererro, Oaxaca, Tabasco, and Veracruz presumably due to their proximity to the Neotropics. This has also been documented for other groups of animals, including insects, such as for Odonata (González and Novelo 1996), Psocoptera (Mockford and Aldrete 1996), Passalidae (Reyes-Castillo 2002), and Bruchinae (Nápoles 2002).

In Furth (2006) new data was added that changed the Alticinae diversity in the various Mexican states, but Oaxaca remained third most diverse with 122 species, Guerrero remained second with 141, and Veracruz was the most diverse with 198. Other states with significant diversity (Furth 2006) were Durango (97 species), Mo-

relos (84), Tabasco (81), and Chiapas (81). It is noteworthy that of these seven most diverse states, five are surrounding Oaxaca.

As discussed in Furth (2004) in Mexico there is a major biogeographic transition zone between the Nearctic and Neotropical Regions and biogeographic affinities may also vary greatly depending on the group considered. Also levels of endemism vary greatly depending on the group considered and, of course, depending on the relative knowledge of the group. As with any country some vertebrate and plant groups are well known, whereas most insect groups are not. Aspects of Mexican biogeography and endemism were also discussed in Furth (2004) with some examples from other groups provided. Biogeography and endemism will be treated below relative to the data from this study regarding Oaxaca and surrounding states.

Materials and methods

The data for this study was taken from three primary sources: first, from previously published literature, especially Furth (2004), Furth (2006) that included original published literature, including Furth and Savini (1996); second, from museum specimens borrowed from a variety of collections as follows: University of California, Berkeley (UCB); University of California, Davis (UCD), California Academy of Sciences (CAS); California Department of Food and Agriculture (CDFA); Brigham Young University (BYU); American Museum of Natural History (AMNH); U. S. National Museum of Natural History (USNM); Texas A. & M. University (TAMU); The Natural History Museum, London (NHM); the F. C. Bowditch Collection, Museum of Comparative Zoology, Harvard University (MCZ); Naturhistorisches Museum Basel (Switzerland) (NHMB); Zoologisches Staatssammlungen München (Germany) (ZSMC); third, from fieldwork by the author in 1991 (19-23 August) around Oaxaca City and in the Sierra de Juárez, 1997 (22-23 July) around Oaxaca City and southwest along Route 190, and 2010 (29 July-4 August) around Oaxaca city and in the Sierra de Juárez.

The Appendix is a combination of older records from the literature, a few collections (USNM, MCZ, NHMB), and new collection records from 8 other institutions above and the author's field work (DGF 1991, 1997, 2010).

Examination and determination of the specimens was made using a Leica MZ APO binocular dissecting microscope. The digital photos of Figure 10 were produced by Karolyn Darrow using the Visionary Digital ™ imaging system and Adobe Photoshop ™.

The fieldwork was primarily based out of the Universidad de la Sierra Juárez (USJI) (Figure 11). Alticinae were collected by general and/or host plant-targeted sweeping with a 15 inch diameter aerial insect net using an aspirator. The majority of the field sites were in the vicinity of Santa Catarina Lachatao (SCL) and daily trips were accompanied by Prof. Atilano Contreras Ramos (UNAM), Prof. Jose Arturo Casasola (USJI), and various members of the SCL community (Figure 12). After the fieldwork extensive collection examination and curation was done at the Colección Nacional de Insectos, Instituto de Biología, UNAM (Figure 13, 14)

Results

As a result of a week of fieldwork in Sierra de Juárez of Oaxaca, Mexico, in 2010 and subsequent determination of the specimens collected, as well as examination of several institutional collections, the number of known species of Alticinae of Mexico increased from 524 (Furth 2006) to 625 (Figure 1) - an increase of over 19%. At the generic level there was only one genus added to the overall fauna of the country (Figure 2). Also resulting from the new fieldwork and collections examined, the number of recorded species for the state of Oaxaca increased from 121 (Furth 2006, 122 were reported but one found later to be in error) to 275 (Figure 3) – an increase of almost 79% and the number of Oaxacan genera rose from 37 to 68 (Figure 4) – an increase of 84%. At both

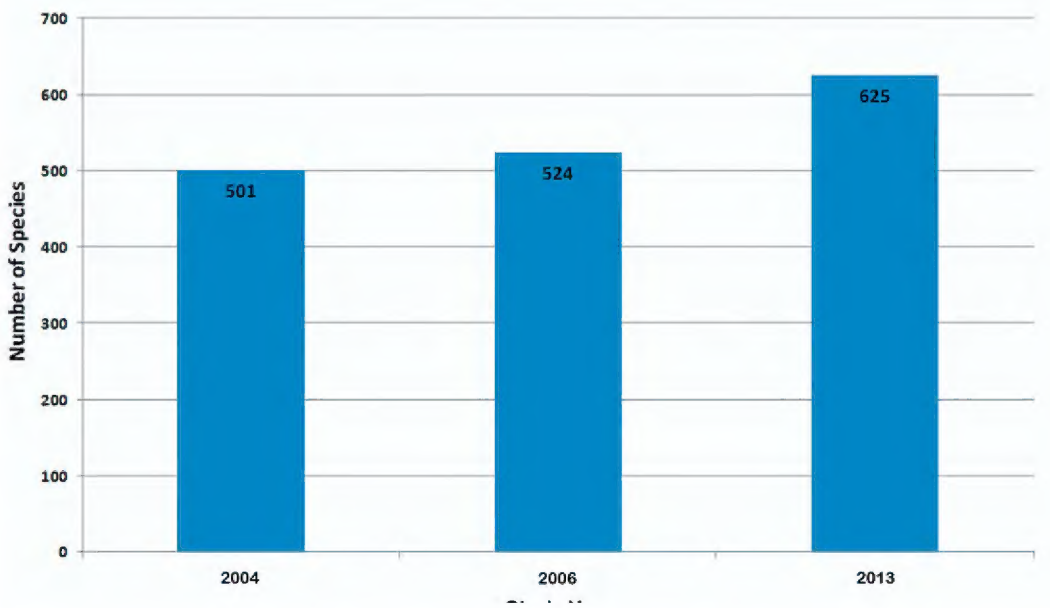

Figure 1. The total number of Alticinae species recorded from Mexico from Furth (2004, 2006) and the current study.

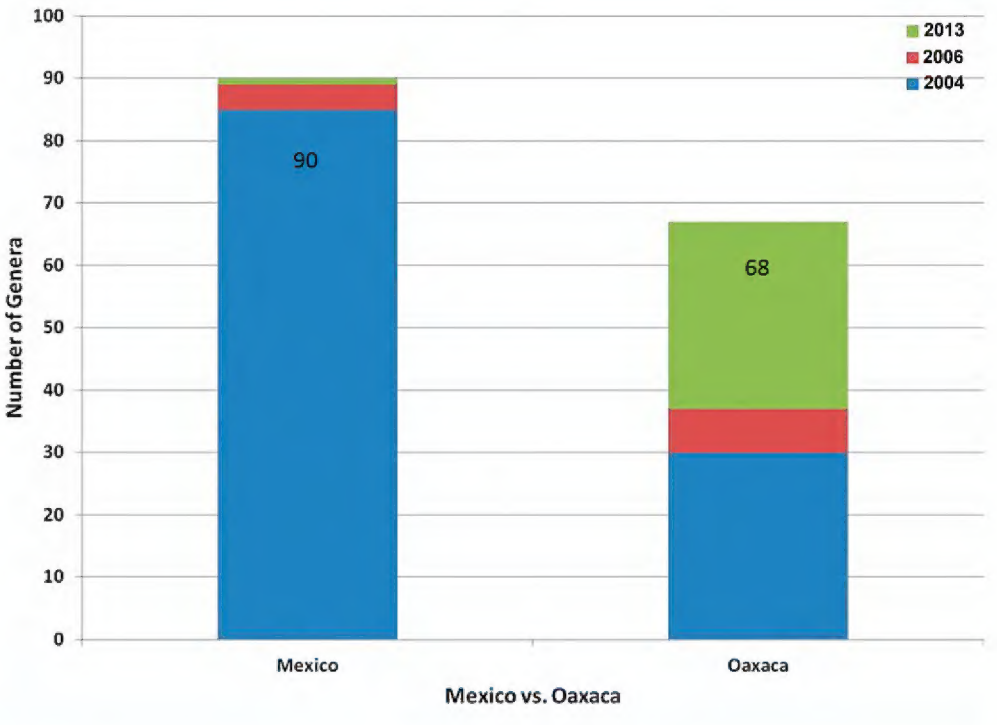

Figure 2. The total number of genera recorded from Mexico and Oaxaca based on Furth (2004, 2006) and the current study.

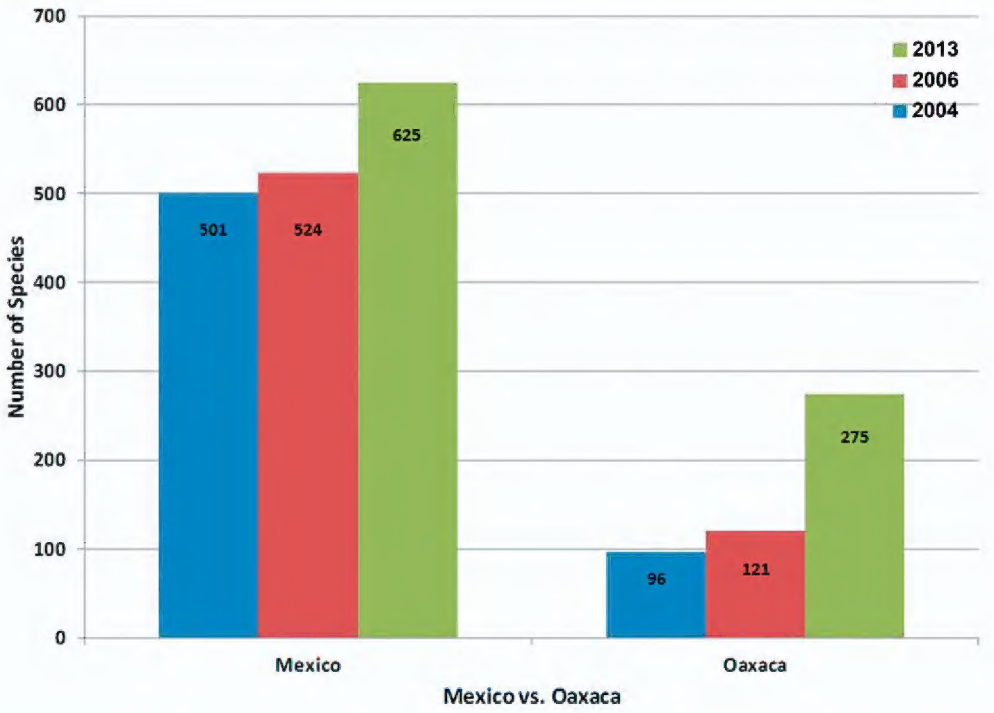

Figure 3. The changes in number of species recorded from Mexico versus Oaxaca only, based on Furth (2004, 2006) and the current study.

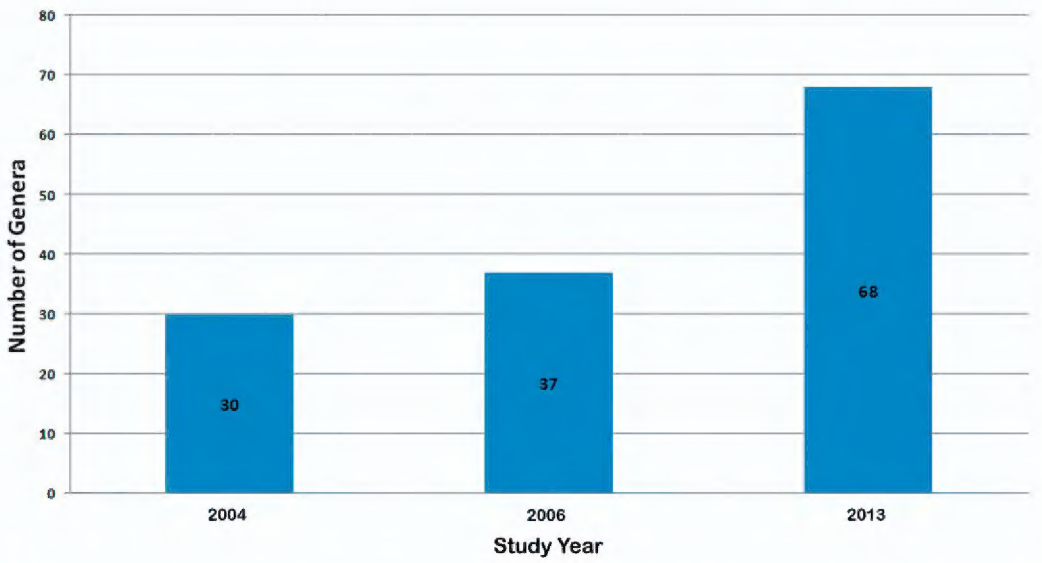

Figure 4. The changes in number of genera of Alticinae recorded only from Oaxaca from Furth (2004, 2006) and the current study.

the species and generic levels in Oaxaca these increases were significantly more than the increases from Furth (2004) to Furth (2006) for species of 96 to 121 (26%) (Figure 3) and for genera from 30 to 37 (23%) (Figure 4).

As for the endemism of Oaxaca as demonstrated by the Alticinae, Figure 5 shows that in Furth (2004, 2006) there were 9 and 11 species, respectively, recorded only from the state of Oaxaca, but as a result of the 2010 fieldwork there are 113 species – an increase of almost 930% from Furth (2006). Many of these (81 species or 72 %) currently only have morphospecies names and probably a significant proportion of these are new to science (see Appendix for OM species numbers). If the endemism is examined at a somewhat broader perspective, i.e., including species recorded in Oax-

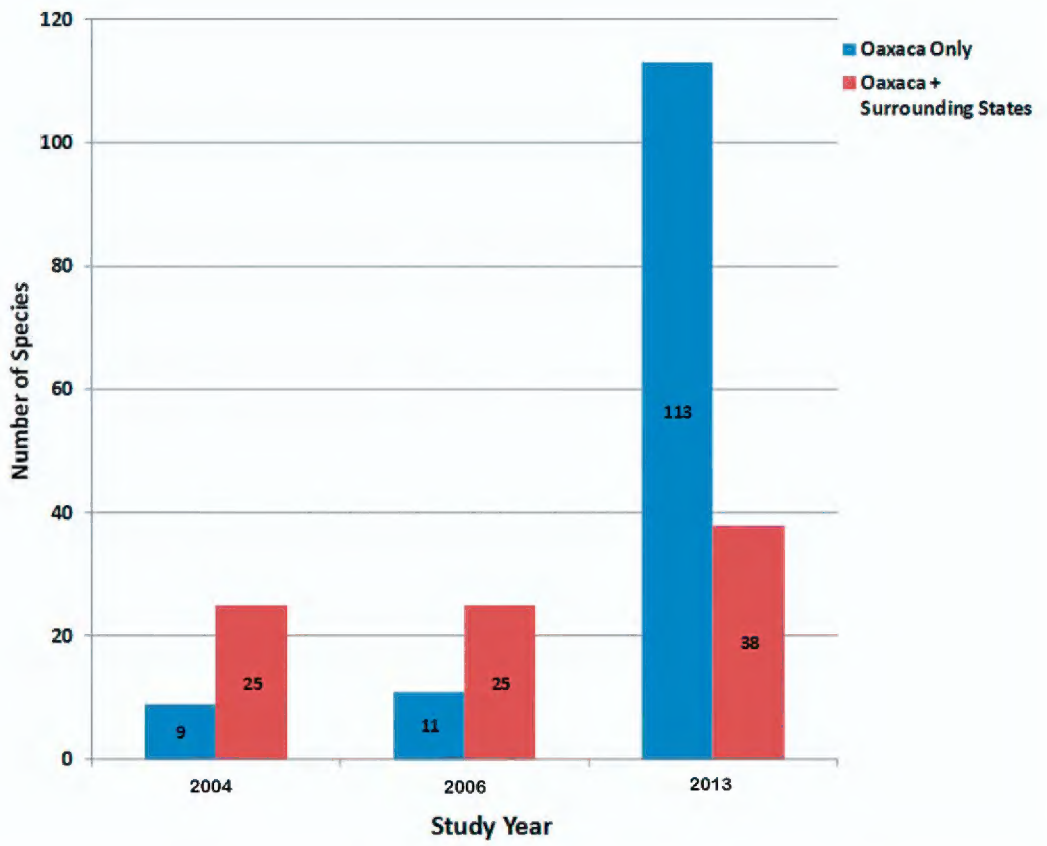

Figure 5. A comparison of the number of endemic species of Alticinae from Oaxaca only and from Oaxaca plus the surrounding states as recorded in Furth (2004, 2006) and the current study.

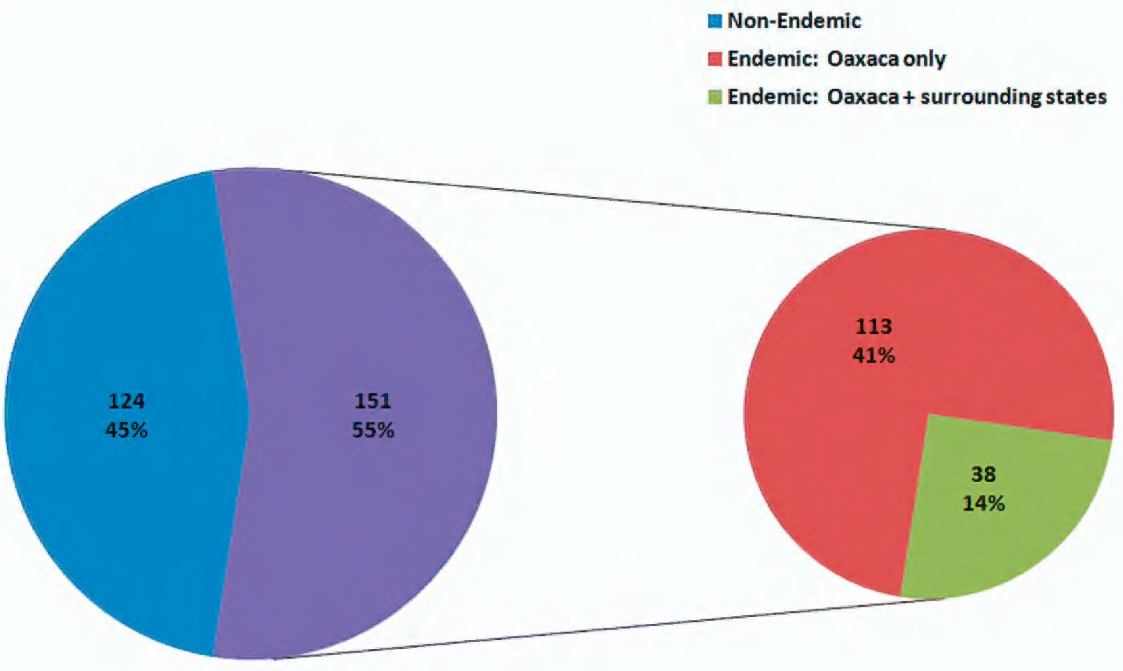

Figure 6. Endemic and non-endemic species numbers and percentages as recorded from the current study.

aca as well as the surrounding states (those bordering Oaxaca, plus Tabasco) then the endemic species from the 2010 data is a less dramatic increase from Furth (2004, 2006) or 25 to 38 – an increase of 52% (Figure 5). This means that of the 275 species recorded from the 2010 fieldwork from Oaxaca, 155 (55%) species are endemic at

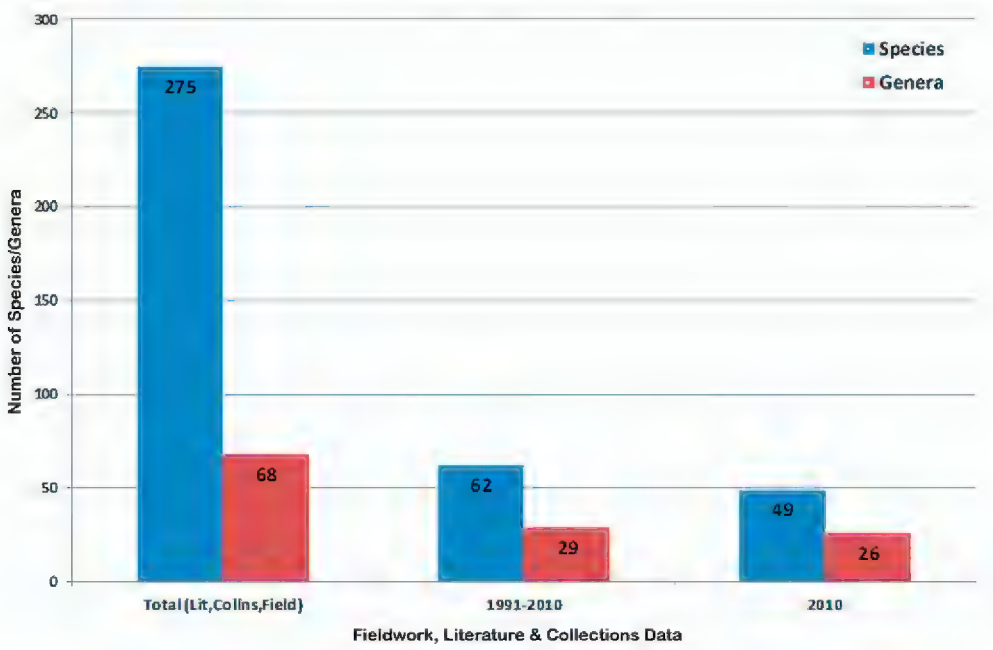

Figure 7. A comparison of the numbers of species/genera recorded from total evidence (literature, collections, author fieldwork), from all fieldwork (1991, 1997, 2010), and from the 2010 field trip alone.

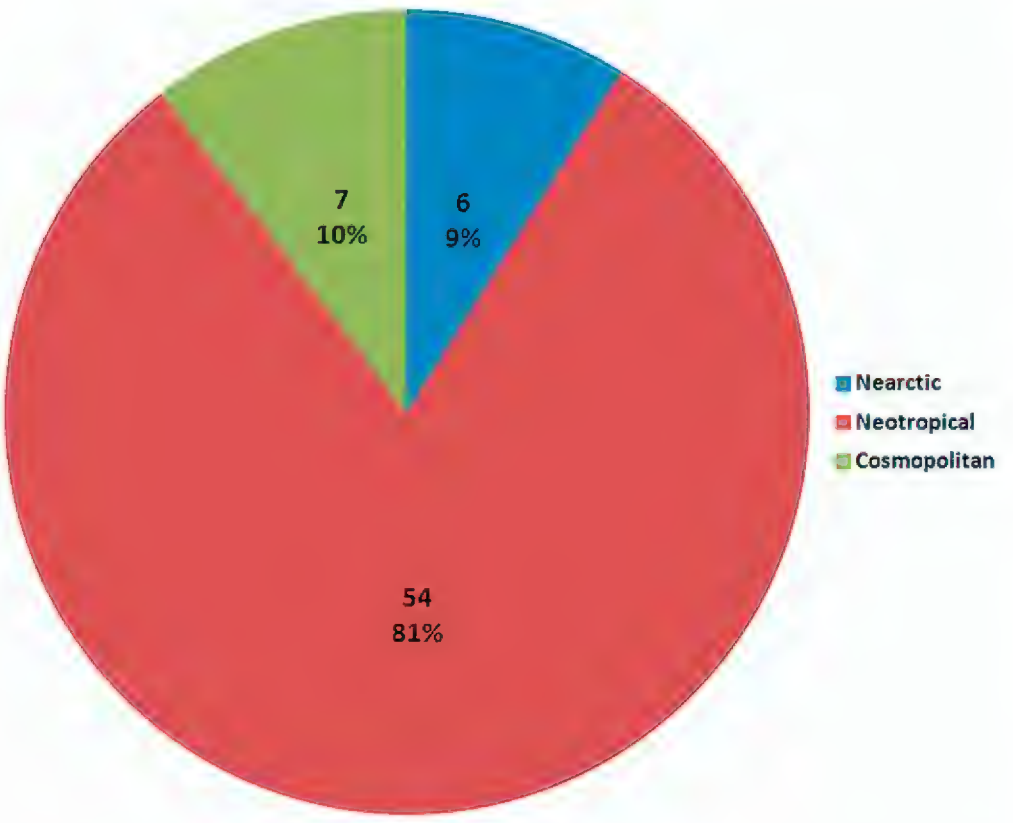

Figure 8. The biogeographic affinity of Alticinae genera of Oaxaca. Cosmopolitan genera are those found in several biogeographic regions.

some level; 41% are restricted endemics known only from Oaxaca and 14% are more broadly endemic; known also from surrounding states (Figure 6).

Figure 7 shows the numbers of species (62) and genera (29) collected by the author during fieldwork from different trips to Oaxaca (1991, 1997, 2010). Of these the 2010 collecting trip alone resulted in 49 species and 26 genera. The 1991 collecting trip was 5 days, the 1997 trip 2 days, and the 2010 trip 7 days. Thus, the 2010 trip alone produced 79% of the species and 90% of the genera (Figure 7).

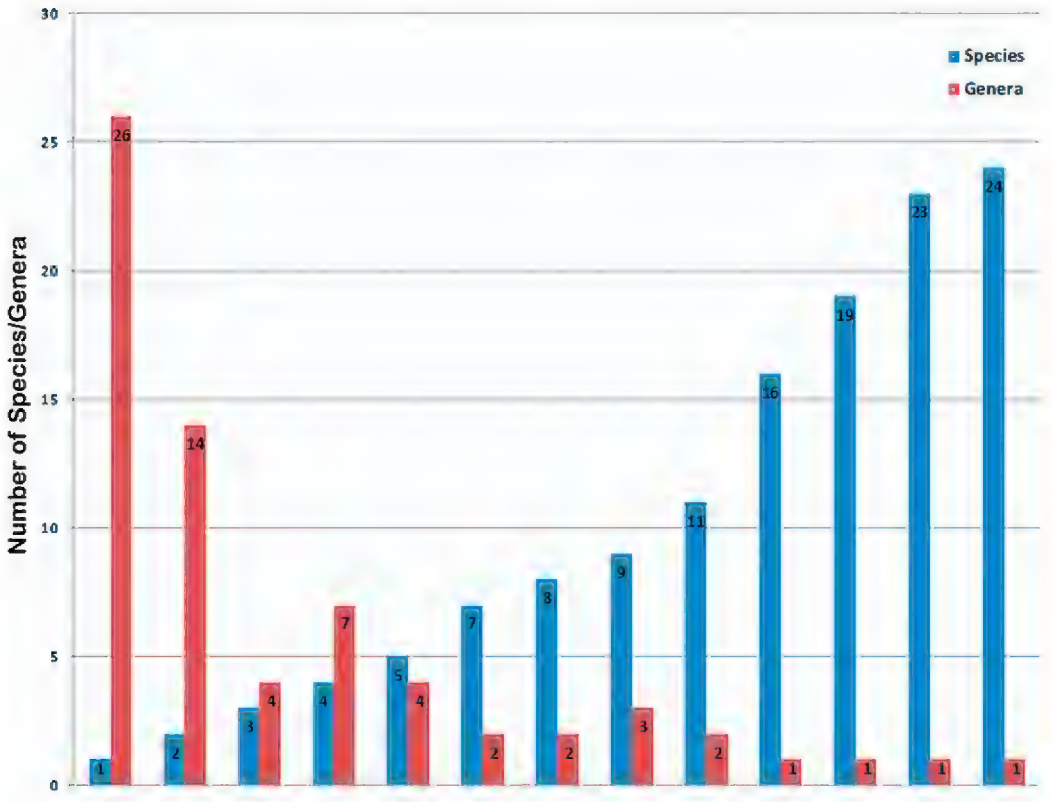

Figure 9. The number of species per genus of recorded Oaxacan Alticinae.

Examining the biogeographical affinities of the Alticinae diversity of Oaxaca at the generic level, i. e, the biogeographic affinities of the 68 genera recorded, there are 6 (9%) genera of Nearctic affinity, 7 (almost 10%) of Cosmopolitan affinity, and 54 (81%) of Neotropical affinity (Figure 8).

Another way to look at the diversity of the Oaxacan Alticinae is to examine the number of species per genus. As shown in Figure 9 of the 68 genera recorded from Oaxaca there is a high number of genera (26) with only one species and a high number of species (16 + 19 + 23 + 24) or 82 from only one genus, with a trend towards more species from fewer genera.

Figure 10 illustrates a few representatives of Alticinae genera and species that demonstrate presumed endemism and significant affinities of the biogeographical elements and distributional extensions in Oaxaca. *Sphaeronychus* OM sp. 2. (Figure 10A) represents one of two probable new species in a genus known from Brazil (25 species), one each from Ecuador and Peru, and only 2 known species from Central America. *Allochroma* OM sp. 1 (Figure 10B) is a probably new species representing a Neotropical genus with 11 known species from Mexico (Furth 2006), another 18 from Central America, and about 7 from South America. *Deuteraltica* OM sp. 1 (Figure 10C) is an undescribed species of a monotypic genus only known from Mexico, Guatemala, and El Salvador (Furth and Savini 1996). *Hypolampsis* OM sp. 2 (Figure 10D) is a probably new species of a very large genus (possibly the largest Neotropical genus of Alticinae) with only 4 known species from Mexico (Furth 2006), another 15 known from elsewhere in Central America (Furth and Savini 1996), and more than 60 from South America. *Disonycha nigrita* Jacoby (Figure 10E) is new to Mexico from the south, previously known only from Guatemala and El Salvador. *Trichaltica zapotensis*

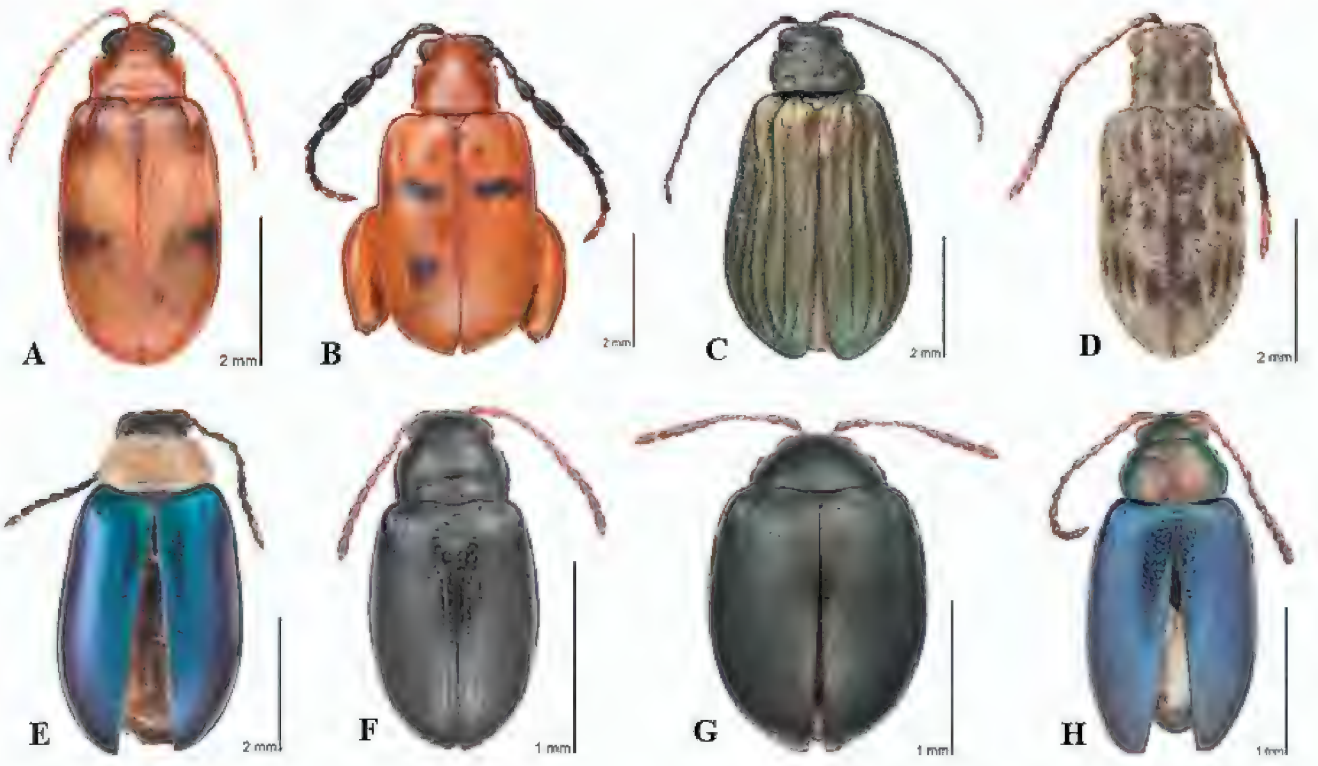

Figure 10. Examples of newly recorded Alticinae from the current study: **A** *Sphaeronychus* OM sp. 2 **B** *Allochroma* OM sp. 1 **C** *Deuteraltica* OM sp.1 **D** *Hypolampsis* OM sp. 2 **E** *Disonycha nigrita* **F** *Trichaltica zapotensis* **G** New Genus **H** *Phyllotreta aeneipennis*.

(Jacoby) (Figure 10F) is new to Mexico from the south, only previously only known from Guatemala and originally described as a species of *Crepidodera*. New Genus OM A (Figure 10G) is almost certainly a new genus probably of Neotropical affinity. *Phyllotreta aeneicollis* Crotch (Figure 10H) is a Nearctic element, new to Mexico from the north, previously only known from southeastern, south central, southwestern USA.

Discussion

As indicated in the Introduction and evident from Maps 1–4, Mexico is geographically positioned rather uniquely between North America and South America and with a large diversity of landscapes, climates, and microhabitats; these are reflected in its diversity of flora and fauna. The southern state of Oaxaca is an interesting reflection of this diverse Mexican geography and its habitats with its own set of special features.

The data in Furth (2004, 2006) were compiled primarily from researching the historical and more recent literature as well as from searching and determination of a few collections (i. e., the USNM, MCZ, and NHMB). The author's previous studies of Alticinae diversity of Mexico were published (2004, 2006) and were based on the literature and examination of primarily two research collections. The current study resulted from more extensive examination of collections from a variety of institutional research collections and a single, brief field trip to one area of Oaxaca. This multifaceted strategy of reviewing the literature, then searching and examining historical research collections at a larger variety of institutions, as well as increased fieldwork is

Figure 11. View of the cloud forest environment of Sierra de Juárez mountains from the Universidad de la Sierra Juárez campus.

Figure 12. A view of typical Bromeliad-dominant cloud forest (many trees covered by *Tillandsia usneoides* (Linnaeus) (L.) Bromeliaceae) around Santa Catarina Lachatao with some of the 2010 collecting team (right to left: Jose Arturo Casasola, Atilano Contreras-Ramos, a local guide, Diana X. Munn).

demonstrated well by the current study. Primarily as a result of the rather brief 2010 fieldwork coupled with the study of at least eight additional institutional collections the number of species known from all of Mexico as well as from Oaxaca increased dramatically, 19% and 79%, respectively. After all examination of historical collections or "indoor collecting", as it is sometimes called, is the result of many different collecting events (and methods) over many years by different collectors. Also targeted fieldwork by an expert produces significant increase in the known fauna in a relatively short time. The efficacy of the combination of these two aspects (examining new collections and new collecting) is demonstrated by the significant increase in Oaxacan Alticinae diversity by 79% for species and 84% for genera.

The three expert field collecting trips by the author in 1991, 1997, and 2010 were of different lengths and, in the case of 1991, at somewhat different seasons. In each case at least one day was spent collecting in the general vicinity of Oaxaca City, but the 1991 and 2010 field trips overlapped considerably geographically. Therefore, the increase in recorded Alticinae diversity for Oaxaca is due to the addition of a significant number of institutional collections examined as well as the intensive 7 days of fieldwork in 2010.

As mentioned above in the Introduction several previous studies of various members of the flora and fauna have demonstrated the high levels of endemism in southern Mexico, especially in Oaxaca. Again, the current study with its increased examination of institutional collections and additional targeted field collecting demonstrated a very large increase (almost 10 times) in apparent endemic species when limited to those only recorded from the state of Oaxaca. Of course, some of this is the result of the fact that many of these species could not be determined to species; therefore, only recorded as Oaxaca, and may either be new to science or previously rarely collected and they may in fact have somewhat broader distribution outside Oaxaca. However, when endemism is extended to the states directly surrounding Oaxaca, a more conservative and probably more realistic demonstration of Oaxacan Alticinae species endemism is revealed of 55%. Of these 41% (113 species) are currently known to be restricted to the state of Oaxaca and 14% (38 species) are known from Oaxaca and the surrounding states.

As mentioned above, one of the objectives of this study is to demonstrate how a variety of research strategies provides a comprehensive account of the diversity for particular region through a combination of researching historical literature, examination of historical collections, and fieldwork. Figure 7 illustrates this on the left-hand histogram through the total results of this study of Oaxacan species and genera of Alticinae. However, to demonstrate the effectiveness of targeted expert fieldwork the middle histogram bars show the 1991 (5 days), 1997 (2 days) and 2010 fieldwork by the author combined and those on the right-hand show the Alticinae diversity captured only for the more extensive (7 day) trip in 2010. The 2010 fieldwork produced 79% of the species and 90% of the genera collected during the author's fieldwork. However, this may also reveal something about seasonality for collecting Alticinae in Oaxaca; that is, it is best earlier in the season (July rather than August), especially because the majority of collecting in 1991 was in the Sierra de Juárez, like in 2010.

Figure 13. Entrance to the Instituto de Biología (UNAM) where the Mexican National Insect Collection is housed.

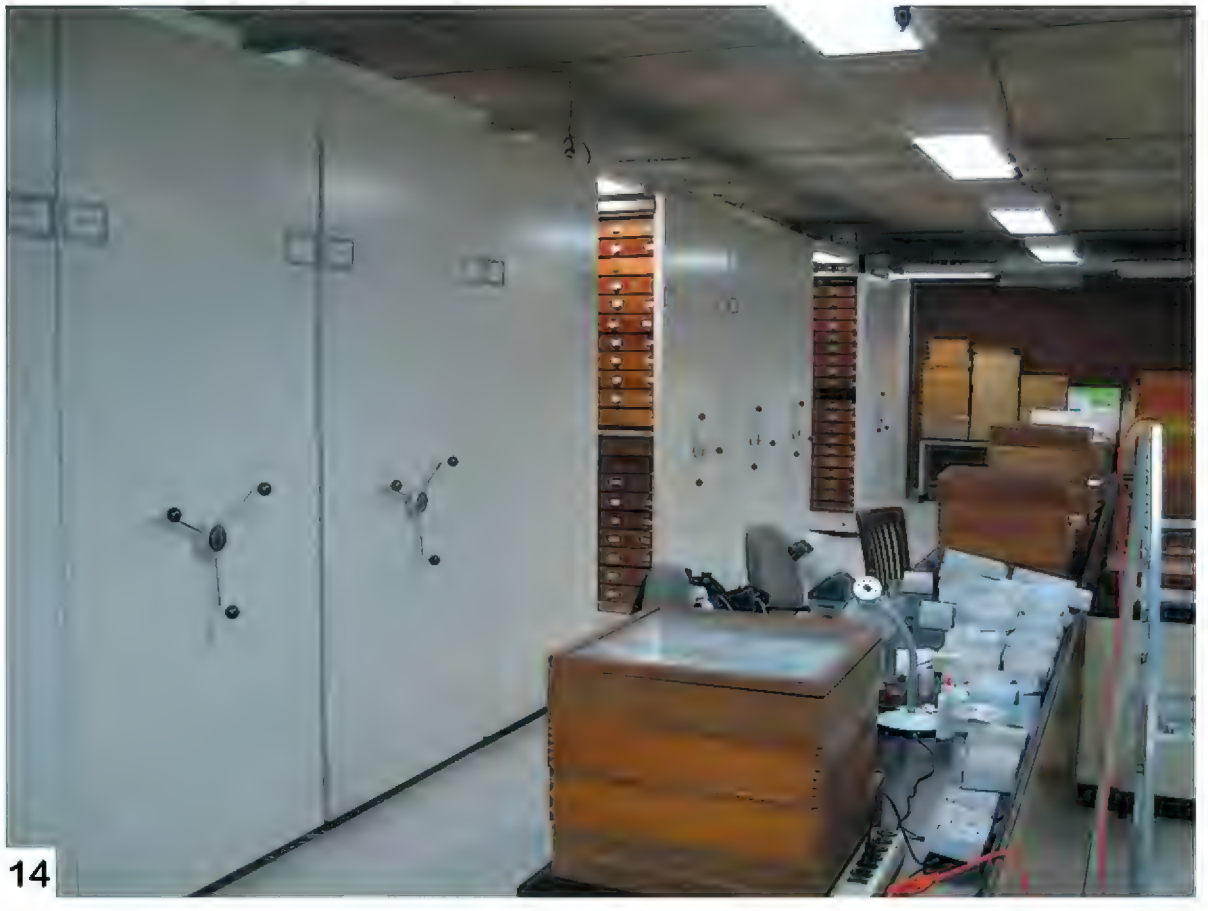

Figure 14. Compactors of the Mexican National Collection (UNAM, IB).

As demonstrated in Figure 9 it is interesting to review the Alticinae taxa of Oaxaca and to note how many species are represented in each genus. For 26 genera (38%) there is only a single species known, whereas there is one genus that has 24 species (9 %) and 82 species

Figure 15. Guelaguetza festival, 2010, in Oaxaca City, performers of the indigenous ethnic group pictured here are from the Pinotepa Nacional people from southern Oaxaca.

(30%) in 4 genera (6%) are represented by single genera. At this time it is not evident the exact cause of this, yet it is still of interest to see this U-shaped curve of species to genera.

Biogeographically it is not surprising that 81% of the genera of Alticinae in Oaxaca show a Neotropical affinity. Other Coleoptera groups also show a strong Neotropical affinity in Mexico overall such as for the species of Curculionidae (41%) (Anderson and O'Brien 1996) and Carabidae at the generic level (40%) are Neotropical (Ball and Shpeley 2000). The geographic position of the state of Oaxaca that includes the extreme "bottleneck" like constriction of the relatively flat Isthmus of Tehuantepec is apparently very important biogeographically and apparently even serves as a kind of transition zone between the more southern Neotropical fauna and the more northern Nearctic fauna. It is probably here that the strong Neotropical influence begins to filter northwards as indicated in Furth (2004) within the southern, more tropical climates of Veracruz and Guerrero. As reported in Furth (2006) the high species diversity in all of Mexico generally is in the southern states of Veracruz (198), Guerrero (141), Oaxaca (122), Chiapas (81), and Tabasco (81). This diversity is certainly influenced strongly by the Neotropical affinities of the taxa. As a result of the current study Oaxaca has jumped to first place among Mexican states as the most Alticinae-diverse, with 275 species – a combination of more extensive examination of collections and the 2010 fieldwork.

In this particular study the 2010 expert fieldwork was done only in one relatively small area of this large tropical state (Oaxaca), i. e., Sierra de Juárez. Given the fact that Oaxaca has many other kinds of habitats and geography (see Maps) one would expect the actual Alticinae diversity to be significantly greater. When other areas of Oaxaca are sampled and even more research collections examined this fact will certainly be realized.

The flora and fauna of Oaxaca is truly diverse demonstrated here by the Alticinae, but the people and culture of Oaxaca is also especially diverse and endemic as can be experienced in the annual festival celebrating this cultural diversity – the Guelaguetza (Figure 15).

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Appendix

List of genera and species names, species authors for Alticinae currently known from Oaxaca. Also listed in the columns are the known distribution in Mexican states outside of Oaxaca (see list below) for these standard state abbreviations), the sources for any records found by the author in various institutional collections (see Methods for abbreviations), and records from the author's fieldwork indicated as DGF1991, DGF1997, DGF2010. OM sp.1 indicates a morphospecies name (one that cannot currently be associated with any already described species) found by the author in Oaxaca, Mexico, i.e., OM. Taxon names with a "?" afterwards have some question as to the correct determination of this species. A species with a "?" after the state acronym means that there is some question as to the certainty of the locality from that state. Author names for genera can be found in Furth and Savini (1996, 1998). The references for this Appendix are listed separately.

Taxon	**Distribution**	***Literature source***	***Collections source***	***Author fieldwork***
Acallepitrix OM sp. 1			UCB	
Acanthonycha OM sp. 1			UCB	
Acrocyum sallei Jacoby	OAX	Jacoby 1885		
Alagoasa acutangula (Jacoby)	CHIS, COL, DGO, GRO, JAL, MEX, MOR, NL, OAX, VER	Jacoby 1886	MCZ, USNM, UCB	
Alagoasa bipunctata (Chevrolat)	CHIS, DF, OAX, SLP, VER, YUC	Jacoby 1886	MCZ, USNM, UCB	
Alagoasa ceracollis (Say)	CHIS, DGO, MOR, OAX, VER	Jacoby 1885	USNM	
Alagoasa chevrolati (Baly)	OAX, VER, YUC	Furth and Savini 1996	MCZ	
Alagoasa clypeata (Jacoby)	CHIS, DGO, HGO, MICH, OAX, TAB, VER	Jacoby 1892	USNM, UCB	
Alagoasa decemguttatus (Fabricius)	CHIH, CHIS, COL, DGO, GRO, JAL, MEX, MOR, NAY, OAX, QROO, SON, TAB, VER	Jacoby 1886, Pallister 1953	MCZ, USNM, UCB, UCD, BYU	
Alagoasa extrema (Harold)	MOR, OAX, TAB, VER	Jacoby 1886	MCZ, USNM	
Alagoasa fimbriata (Forster)	GRO, MICH, MOR, OAX	Jacoby 1886	MCZ, USNM	
Alagoasa hoegei (Jacoby)	OAX, VER	Jacoby 1886		
Alagoasa infirma (Jacoby)	OAX, VER	Jacoby 1886		
Alagoasa lateralis (Jacoby)	COL, GRO, JAL, MEX, MICH, MOR, NAY, OAX	Jacoby 1886	MCZ, USNM	
Alagoasa longicollis (Jacoby)	OAX	Jacoby 1886		
Alagoasa seriata (Baly)	GRO, MOR, OAX, PUE, VER	Jacoby 1886	MCZ, NHMB, UCB	
Alagoasa tehuacana Bechyné	JAL, PUE	Bechyne 1955	USNM, BYU, CAS, UCB	
Alagoasa violaceomarginata (Jacoby)	OAX	Jacoby 1886		

Taxon	**Distribution**	***Literature source***	***Collections source***	***Author fieldwork***
Alagoasa virgata (Harold)	CHIH, CHIS, COL, DGO, GRO, JAL, MEX, MOR, NAY, PUE, OAX, SIN, SLP, TAB, VER	Jacoby 1886, Pallister 1953	MCZ, USNM, NHMB	
Alagoasa OM sp. 1			UCB	
Alagoasa OM sp. 2			UCB, UCD	
Alagoasa OM sp. 3			UCB	
Allochroma balyi Clark	OAX	Jacoby 1886	BYU	
Allochroma godmani Jacoby	OAX, VER	Jacoby 1886		
Allochroma hoegei Jacoby	DGO, OAX, VER	Jacoby 1886	MCZ	
Allochroma semipunctatum Jacoby	OAX	Jacoby 1886		
Allochroma OM sp. 1			BYU	
Altica bimarginata (Say)	DGO, GRO, OAX, VER	Jacoby 1884	MCZ	
Altica patruelis Harold	DF, GRO, GTO, MEX, MICH, OAX ?, PUE, TAB, VER	Jacoby 1884	MCZ, USNM	
Altica rugicollis Jacoby	CHIH, OAX	Jacoby 1884	MCZ	
Altica OM sp. 1			UCB	
Asphaera abdominalis (Chevrolat)	AGS, CHIH, CHIS, COAH, COL, DF, DGO, GRO, GTO, HGO, JAL, MEX, MICH, MOR, NL, OAX, SIN, SLP, TAMPS, VER, ZAC	Jacoby 1885, Jacoby 1892, Pallister 1953	MCZ, USNM, CAS, UCB	
Asphaera abdominalis var.			UCB	
Asphaera cyanopsis Harold	DF, DGO, OAX, SLP, TAB, VER	Jacoby 1885	MCZ, USNM	
Asphaera icteridera (Harold)	CHIS, DGO, GRO, MOR, OAX, VER	Jacoby 1885, Pallister 1953	USNM	DGF 2010
Asphaera mexicana (Harold)	CHIS, DGO, GRO, MICH, MOR, NAY, OAX, VER	Jacoby 1886	MCZ, USNM, UCB, UCD	
Asphaera polita Jacoby	OAX, TAB, VER	Jacoby 1885	MCZ	
Asphaera reichei (Harold)	CHIS, DF, OAX, SLP, VER	Jacoby 1885	USNM	
Asphaera OM sp. 1			AMNH	
Asphaera OM sp. 2			USNM	
Blepharida bryanti Furth	CHIS, OAX	Furth 1998		
Blepharida flavocostata Jacoby	GRO, MEX, MICH, MOR, OAX, PUE	Furth 1998		
Blepharida godmani Jacoby	CHIS, OAX, VER	Furth 1998		
Blepharida melanoptera (Fall)	MICH, OAX, SON	Furth 1998		
Blepharida mexicana Jacoby	OAX, VER	Furth 1998		
Blepharida punctatissima Jacoby	CHIS, OAX, VER	Furth 1998		

Taxon	Distribution	*Literature source*	*Collections source*	*Author fieldwork*
Blepharida quatuordecim-punctata Jacoby	CHIS, OAX, VER	Furth 1998		
Blepharida rhois (Forster)	CHIH, COAH, DGO, GRO, HGO, NL, OAX, PUE, QRO, SLP, TAMPS	Furth 1998		
Blepharida trifasciata Jacoby	OAX	Furth 1998		
Blepharida unami Furth	OAX, PUE	Furth 1998		
Blepharida verdea Furth	GRO, MOR, OAX	Furth 1998		
Cacoscelis flava Clark	OAX, TAMPS	Jacoby 1884	USNM	
Cacoscelis varians (Jacoby)	OAX, TAB, VER	Jacoby 1891		
Capraita conspurcata (Jacoby)	CHIS, DF, DGO, GRO, GTO, HGO, MEX, MICH, MOR, OAX, PUE, VER	Jacoby 1886	MCZ, USNM	DGF 2010
Capraita maculata (Harold)	CHIS, GRO, JAL, MEX, MOR, OAX, VER, YUC	Jacoby 1886	MCZ	
Centralaphthona fulvipennis ? Jacoby	VER ?		MCZ, UCB	
Centralaphthona mexicana Jacoby	COAH, DGO, GRO	Jacoby 1885, Jacoby 1891	MCZ: BYU	
Centralaphthona obscuripen-nis (Jacoby)	GRO, MOR		USNM, CAS	DGF 1991, DGF 2010
Centralaphthona semipun-cata Jacoby	JAL, VER	Jacoby 1891	MCZ, UCB	DGF 1991
Chaetocnema balyi Jacoby	COAH, DF	Jacoby 1892	MCZ, CAS, CDFA, BYU, UCB	
Chaetocnema capitata Jacoby	DGO, GTO	Jacoby 1885	MCZ	DGF 2010, DGF 1991
Chaetocnema cephalotes Jacoby	PUE, SIN		NHMB, AMNH, UCB	
Chaetocnema confinis Crotch	DF		USNM, BYU, CDFA	
Chaetocnema fulvicornis Jacoby	DGO, GRO, GTO	Jacoby 1885		DGF 2010
Chaetocnema fulvilabris Jacoby	GRO, MOR, VER	Jacoby 1892	UCB, USNM	
Chaetocnema minuta Melsheimer			CAS, UCB	DGF 2010
Chaetocnema OM sp. 1				DGF 2010
Chaetocnema OM sp. 2			BYU	
Chaetocnema OM sp. 3				DGF 2010
Chaetocnema OM sp. 4			BYU	
Chrysogramma septempunc-tata Jacoby	DGO, MOR, OAX, PUE	Furth and Savini 1996	USNM	

Taxon	**Distribution**	***Literature source***	***Collections source***	***Author fieldwork***
Chrysogramma trifasciata Jacoby	OAX	Jacoby 1891		
Cyrsylus recticollis Jacoby	CHIS, TAB, VER	Jacoby 1892	USNM, TAMU	
Deuteraltica longicornis (Jacoby)	CHIS		USNM, TAMU	
Deuteraltica OM sp. 1			TAMU	
Dibolia championi Jacoby	OAX, VER	Parry 1974	USNM	
Dinaltica OM sp. 1			BYU	
Dinaltica OM sp. 2			USNM	
Dinaltica OM sp. 3			BYU	DGF 2010
Dinaltica OM sp. 4				DGF 2010
Diphaltica nitida (Jacoby)	CHIS, DF, DGO, MICH, OAX, TAB, VER	Jacoby 1884	MCZ, USNM	
Diphaltica OM sp. 1			CAS	
Diphaulaca aulica (Olivier)			UCB	DGF 1997
Diphaulaca aulica cordobae Barber	CHIS, GRO, GTO, HGO, JAL, MEX, MICH, MOR, NAY, OAX, PUE, QROO, SLP?, TAB, TAMPS, VER, YUC	Jacoby 1884	MCZ, USNM, BYU, UCB	
Diphaulaca wagneri Harold	CHIS, GRO, OAX, YUC	Barber 1941	NHMB	DGF 2010
Disonycha discoidea abbreviata Melsheimer	DGO, MEX, MOR, OAX	Jacoby 1884	MCZ	
Disonycha antennata Jacoby	COL, DGO, GRO, JAL, MEX, MICH, MOR, OAX, VER	Jacoby 1884, Blake 1955	USNM	
Disonycha brevilineata Jacoby	DGO, GRO, JAL, MOR, OAX	Jacoby 1884, Jacoby 1902, Blake 1955	MCZ, CAS	
Disonycha brunneofasciata Jacoby	GRO, PUE, SLP	Blake 1955	USNM, UCB	
Disonycha caroliniana (Fabricius)	DGO, NL, OAX, SIN, VER	Jacoby 1884	USNM	
Disonycha collata (Fabricius)	CHIH, COAH, DF, DGO, GTO, JAL, MEX, MICH, MOR, OAX, PUE, TAB, VER, YUC	Jacoby 1884, Pallister 1953	MCZ, USNM	
Disonycha dorsata Harold	MOR, OAX, TAB, VER, YUC	Jacoby 1884	MCZ, USNM, BYU	
Disonycha figurata Jacoby	AGS, CHIH, CHIS, COAH, COL, DF, DGO, GRO, GTO, JAL, MEX, MICH, MOR, NAY, OAX, SIN, TAB, VER, YUC	Jacoby 1884, Pallister 1953, Blake 1955	MCZ, USNM, NHMB, UCB	

Taxon	Distribution	*Literature source*	*Collections source*	*Author fieldwork*
Disonycha fumata fumata LeConte	BC, CHIH, CHIS, DGO, GRO, HGO, JAL, MEX, MICH, MOR, NL, OAX, PUE, SLP, SON, TAB, VER, ZAC	Blake 1955	USNM	
Disonycha glabrata (Fabricius)	BC, BCS, CAMP, CHIS, COL, DGO, GRO, JAL, MOR, NAY, OAX, PUE, SIN, SON, TAB, TAMPS, YUC, VER	Jacoby 1884, Blake 1955	MCZ, USNM, CAS, UCB, UCD	DGF 2010
Disonycha guatemalensis Jacoby	CHIS, GRO, MOR, OAX, VER?	Blake 1955	USNM	DGF 2010
Disonycha hoegei Jacoby	VER, OAX	Jacoby 1884		
Disonycha leptolineata texana Schaeffer	DGO, GRO, JAL, MOR, NL, OAX, QROO, TAMPS, YUC	Blake 1955	USNM, CAS	
Disonycha maculipes Jacoby	CHIS, VER	Jacoby 1891	USNM, AMNH, CAS, UCB	
Disonycha militaris Jacoby	TAB, VER, YUC	Jacoby 1884	USNM, UCB	
Disonycha nigrita Jacoby			UCB	DGF 2010
Disonycha pluriligata LeConte	BC, CHIH, DGO, JAL, NAY, SIN, SLP, SON, VER	Furth and Savini 1996	MCZ, UCB	
Disonycha politula Horn	AGS, CAMP, CHIH, DF, DGO, GRO, GTO, HGO, JAL, MEX, MOR, OAX, PUE, QRO, SLP, SON, TAMPS, VER, ZAC	Jacoby 1891, Pallister 1953	MCZ, USNM	
Disonycha quinquelineata (Latreille)	CHIS, COL, GRO, OAX, QROO, TAB, TAMPS, VER	Jacoby 1884, Blake 1955	MCZ, USNM	
Disonycha scriptipennis (Jacoby)	CHIS, COL, DGO, GRO, MOR, NAY, OAX, YUC	Jacoby 1891	USNM, NHMB	
Disonycha subaenea Jacoby	DGO, GRO, MOR, OAX	Jacoby 1884	MCZ, USNM	
Disonycha teapensis Blake	OAX, SLP, TAB	Blake, 1955	NHMB	
Disonycha OM sp. 1			CDFA	
Distigmoptera suturalis (Jacoby)	GRO, OAX	Jacoby 1892	NHMB	
Dysphenges OM sp. 1				DGF 2010
Egleraltica OM sp. 1			BYU, UCB	
Epitrix cucumeris (Harris)	DGO, GRO, MOR, PUE, VER	Jacoby 1891	MCZ, USNM, ZSMC, CDFA, UCB	DGF 1991, DGF 2010
Epitrix fasciata Blatchley	CHIH, DGO, NL, TAMPS	Maes and Staines 1991	USNM	DGF 2010

Taxon	**Distribution**	***Literature source***	***Collections source***	***Author fieldwork***
Epitrix robusta Jacoby	GRO	Jacoby 1891		DGF 2010, DGF 1997
Epitrix rufula Weise	DF, GRO, MOR	Jacoby 1891	USNM, UCB	DGF 2010
Epitrix OM sp.1			UCB	
Epitrix OM sp.2				DGF 2010
Epitrix OM sp.3			CDFA	DGF 2010
Epitrix OM sp.4				DGF 2010
Genaphthona transversicollis (Jacoby)	CHIS, JAL, OAX, PUE		USNM, BYU, CDFA, UCB	DGF 1997
Glenidion flexicaulis Schaeffer	TAMPS, YUC		USNM, TAMU	
Glyptina nivialis Horn	MOR		USNM	DGF 2010
Heikertingerella OM sp. 1				DGF 2010
Heikertingerella OM sp. 2			BYU	
Heikertingerella OM sp. 3			UCB	
Heikertingerella OM sp. 4			UCB	
Hemiphyrnus elongatus Jacoby	OAX, TLAX, VER	Jacoby 1884		
Hemiphyrnus sulcatipennis (Jacoby)	GRO, MEX, OAX	Jacoby 1891	NHMB, BMNH	
Hemiphyrnus sydneyae Gilbert & Andrews			BYU	
Hemiphyrnus tenuicornis Jacoby	HGO, OAX	Jacoby 1891	MCZ	
Hypolampsis OM sp. 1			UCB	
Hypolampsis OM sp. 2			BYU, USNM	
Hypolampsis OM sp. 3			BYU	
Hypolampsis OM sp. 4			BYU	
Hypolampsis OM sp. 5			USNM	
Iphitroides nigrocinctus Jacoby	GRO	Jacoby 1891	CAS	
Kuschelina laeta (Perbosc)	TAMPS, VER	Heikertinger and Csiki 1940	MCZ, USNM, UCB	
Kuschelina modesta (Jacoby)	CHIH, CHIS, DF, DGO, GRO, GTO, HGO, MEX, MOR, OAX, PUE, SLP, TLAX, VER	Jacoby 1886, Pallister 1953	MCZ, USNM	DGF 2010
Leptophysa hirtipennis (Jacoby)	OAX, VER		USNM	
Longitarsus columbicus ? Harold	GRO		MCZ	DGF 2010
Longitarsus mexicanus Csiki	DF, DGO, GRO, GTO, HGO, MEX, MICH, MOR, PUE	Jacoby 1891	MCZ, NHMB, USNM, UCB	DGF 1997
Longitarsus varicornis Suffrian	TAB, VER	Jacoby 1885, Jacoby 1891	UCB	
Longitarsus OM sp. 1			BYU	

Taxon	Distribution	*Literature source*	*Collections source*	*Author fieldwork*
Longitarsus OM sp. 2			UCB	DGF 1997
Longitarsus OM sp. 3			CAS	
Longitarsus OM sp. 4			UCB	
Longitarsus OM sp. 5			UCB	
Longitarsus OM sp. 6			USNM	
Luperaltica longicornis (Jacoby)	CHIS, COL?, MOR?, OAX?		USNM	
Luperaltica sylvia (Bechyne & Bechyne)			USNM, UCB	DGF 1997, DGF 2010
Luperaltica viridipennis (Jacoby)	OAX	Jacoby 1884		
Luperaltica OM sp. 1			USNM	
Luperaltica OM sp. 2			BYU	
Luperaltica OM sp. 3			BYU, USNM	
Luperaltica OM sp. 4			BYU	
Lupraea frontalis (Jacoby)	OAX	Jacoby 1885	USNM	
Lupraea fulvicollis ? Jacoby	VER		MCZ	DGF 2010
Lupraea guatemalensis (Jacoby)	CHIS, GRO, MOR, VER	Jacoby 1891	BYU, CDFA, USNM, UCB	
Lupraea semifulva (Jacoby)	CHIS, OAX		USNM	
Lupraea smithi (Jacoby)	GRO, MOR	Jacoby 1891	USNM	DGF 2010
Lupraea OM sp. 1			BYU	
Lupraea OM sp. 2			UCB	
Lupraea OM sp. 3			UCD	
Lysathia jacobyi (Csiki)	DF, GTO, OAX, TAB, ZAC	Jacoby 1891	USNM	
Lysathia occidentalis (Suffrian)	YUC		ZSMC, UCB	
Macrohaltica patruelis (Harold)	DF, DGO, GTO, MEX, MICH, MOR, OAX, PUE, VER	Jacoby 1884	USNM	
Macrohaltica OM sp. 1			UCB	
Margaridisa managua ? (Bechyné)	DGO, SLP		USNM	DGF 2010
Monomacra cupreata (Jacoby)	OAX	Jacoby 1891		
Monomacra hoegei (Jacoby)	OAX, VER	Jacoby 1884		
Monomacra mexicana (Jacoby)	OAX, VER	Jacoby 1884		
Monomacra tibialis (Olivier)	OAX		USNM	
Monomacra violacea (Jacoby)	CHIS, VER		USNM, BYU, CAS, UCB	DGF 2010
Monomacra OM sp. 1			UCB	
Monomacra OM sp. 2			USNM	
Neothona sp.	JAL, MICH, OAX, VER		USNM	
Neothona OM sp. 1				DGF 2010

Taxon	**Distribution**	***Literature source***	***Collections source***	***Author fieldwork***
Neothona OM sp. 2			USNM, UCB	
Nesaecrepida infuscata (Schaeffer)	CAMP, COL, GRO, JAL, MICH, OAX, TAB, TAMPS, VER		USNM, ZSMC, UCB	
Notozona histrionica Baly	OAX, VER	Furth and Savini 1996	MCZ	
Omophoita aequinoctialis aequinoctialis (Linnaeus)	CHIS, HGO, MICH, OAX, QROO, SLP, TAB, TAMPS, VER	Furth and Savini 1996	USNM, AMNH, BMNH, UCB, UCD	
Omophoita cinctipennis (Chevrolat)	JAL, OAX, PUE, SLP, VER	Jacoby 1885	USNM	
Omophoita octomaculata (Crotch)	OAX, TAB, TAMPS, VER	Jacoby 1886	ZSMC	
Omophoita quadrinotata centraliamericana Bechyné	OAX, TAB, VER	Bechyne 1955	USNM, BMNH	
Omophoita recticollis (Baly)	CHIS, HGO, OAX, TAB, TAMPS, VER	Jacoby 1885, 1891	USNM	
Palaeothona chiriquiensis Jacoby				DGF 2010
Palaeothona rubroviridis Blake	DGO	Blake 1950		DGF 2010
Palaeothona rugifrons (Jacoby)	VER	Jacoby 1885	BYU, UCB, USNM	
Palaeothona OM sp. 1			CDFA	
Palaeothona OM sp. 2			USNM	
Palaeothona OM sp. 3			BYU	
Palaeothona OM sp. 4			BYU	
Palaeothona OM sp. 5			UCB	
Palaeothona OM sp. 6			BYU, CDFA	
Pedilia inornata (Jacoby)	OAX, VER	Duckett 1993 in litt.		
Phrynocepha capitata Jacoby	CHIS?, GRO, JAL, OAX, TAB?	Jacoby 1884	USNM, UCB	
Phrynocepha deyrollei Baly	AGS, CHIH, DGO, GRO, GTO, MICH, MOR, OAX, PUE, SLP ?	Jacoby 1884, Pallister 1953	USNM, UCB	DGF 2010
Phrynocepha pulchella Baly	CHIS, COL, DGO, GTO, JAL, MICH, MOR, OAX, VER	Jacoby 1884	USNM, NHMB	
Phydanis bicolor Horn	OAX, TAMPS		USNM	
Phydanis nigriventris Jacoby	GRO, OAX, SLP, SON	Jacoby 1891	USNM	DGF 2010
Phyllotreta aeneicollis Crotch				DGF 1997, DGF 2010
Phyllotreta pusilla Horn	AGS, BC?, CHIH, DF, DGO, HGO, MOR, OAX, ZAC	Chittenden 1923	USNM	DGF 1997

Taxon	Distribution	*Literature source*	*Collections source*	*Author fieldwork*
Phyllotreta OM sp. 1				DGF 2010
Phyllotreta OM sp. 2			UCB	
Physimerus scabrosus (Clark)	DGO, OAX, VER	Jacoby 1886	MCZ	
Physimerus OM sp. 1			CAS	
Platiprosopus pallens (Fabricius)	GRO, HGO, MOR, OAX, PUE, VER	Furth and Savini 1996	USNM	
Plectrotetra clarki Baly	DF, DGO, HGO, MOR, OAX, PUE, SIN, SLP, TAMPS, VER	Jacoby 1884	MCZ, USNM	
Plectrotetra guatemalensis Jacoby	MOR	Jacoby 1891	BMNH	
Plectrotetra inaequalis Jacoby	OAX, TAMPS, VER	Jacoby 1884	USNM	
Plectrotetra multipunctata Jacoby	DGO?, MEX, MOR, OAX, VER	Jacoby 1891	MCZ, USNM	
Plectrotetra submetallica Jacoby	OAX, VER	Jacoby 1884		
Prasona viridis Baly	VER	Jacoby 1886	USNM	
Prasona OM sp. 1			BYU, USNM	
Propiasus fulvus (Jacoby)	GRO	Jacoby 1892	USNM	
Pseudorthygia nigritarsis Jacoby	GRO, OAX, TAMPS	Jacoby 1891	USNM	DGF 2010
Psylliodes convexior LeConte	BCS	Horn 1895, Furth and Savini 1998		DGF 1997
Resistenciana ornata (Jacoby)	PUE, VER	Jacoby 1884	MCZ, BYU, USNM	
Rhinotmetus modestus Jacoby	GRO, MOR	Jacoby 1892	MCZ	DGF 1991
Rhinotmetus OM sp. 1			BYU	
Rhinotmetus OM sp. 2				DGF 1991
Rhinotmetus OM sp. 3				DGF 1991
Scelidopsis rufofemorata Jacoby	TAMPS, VER	Jacoby 1888	USNM, CAS	
Sphaeronychus OM sp. 1			BYU	
Sphaeronychus OM sp. 2			BYU, UCB, USNM	
Stegnea OM sp. 1			TAMU	
Strabala rotunda Blake	CHIS, COL, DF, GRO, JAL, NAY, NL, SLP, TAMPS, VER, YUC	Blake 1953	USNM, NHMB, ZSMC, UCB	
Strabala rufa Illiger	CHIS, COL, DGO, GRO, OAX, PUE, TAB, VER	Jacoby 1884, 1891		
Syphrea burgessi (Crotch)	MOR, OAX, TAMPS		USNM	
Syphrea cyaneipennis (Jacoby)	GRO, HGO, JAL, SLP, TAB, TAMPS	Jacoby 1891	USNM, BYU, CDFA	
Syphrea flavicollis (Jacoby)	BCS, GRO, GTO, JAL, MOR, OAX, PUE	Jacoby 1884, Riley, Clark and Gilbert 2001	MCZ, USNM	

Taxon	**Distribution**	***Literature source***	***Collections source***	***Author fieldwork***
Syphrea parvula (Jacoby)	JAL, TAB, VER, YUC	Jacoby 1891	USNM, BYU, UCB	
Syphrea smithi (Jacoby)	OAX, TAB, TAMPS	Jacoby 1891	USNM	
Syphrea sublaevipennis (Jacoby)	OAX, VER	Jacoby 1891	MCZ	
Syphrea teapensis (Jacoby)	OAX, SLP, TAB, VER	Jacoby 1891	USNM	
Syphrea OM sp. 1			BYU	DGF 2010
Syphrea OM sp. 2			BYU	
Syphrea OM sp. 3			CAS	
Syphrea OM sp. 4			BYU	
Syphrea OM sp. 5			BYU	
Syphrea OM sp. 6				DGF 2010
Syphrea OM sp. 7			USNM	
Syphrea OM sp. 8			BYU	
Syphrea OM sp. 9			TAMU, USNM	
Systena abbreviata Jacoby	PUE	Jacoby, 1902	CDFA	
Systena blanda Melsheimer	BC?, CHIH, JAL, MICH, NL, SIN, SLP?, SON, TAB, VER	Pallister 1953	USNM, UCB	
Systena championi Jacoby	GRO, MOR, OAX, VER		USNM	
Systena contigua Jacoby	CHIS, GRO, GTO, HGO, OAX, SON?, TAMPS, VER?, ZAC	Jacoby 1884	USNM, CDFA, UCB	DGF 2010
Systena gracilenta Blake	NL	Blake 1933, Furth and Savini 1998		DGF 2010
Systena nigroplagiata Jacoby	AGS, CHIH, DF, DGO, GTO, GRO, JAL, MICH, MOR, OAX, PUE, VER	Jacoby 1884, Pallister 1953	MCZ, USNM	DGF 2010
Systena pectoralis Clark	CHIS, GTO, OAX, VER	Jacoby 1884	MCZ	
Systena puncticollis Jacoby	OAX	Jacoby 1884		
Systena s-littera (Linnaeus)	CHIS, GTO, TAB, VER	Jacoby 1884	MCZ, USNM, UCB	
Systena semivittata Jacoby	BCS, GRO, GTO, HGO, MEX, MOR, NL, OAX, SIN	Jacoby 1884	MCZ, USNM, NHMB	DGF 2010
Systena subcostata Jacoby	MICH, MOR, VER	Jacoby 1884	USNM, CDFA, UCB	DGF 2010
Systena sulphurea Jacoby	CHIH, DGO, GRO, MOR, OAX	Jacoby 1891	MCZ, USNM, BYU	DGF 1997
Systena thoracica Jacoby	CAMP, HGO, PUE, QROO, TAB, VER	Jacoby 1884	MCZ, USNM, UCB	
Systena variabilis Jacoby	CHIH, CHIS, COL, DGO, GRO, GTO, MICH, MOR, NAY, OAX, VER	Jacoby 1884, Pallister 1953	MCZ, USNM, ZSMC, UCB	
Systena OM sp. 1			UCB	DGF 2010

Taxon	Distribution	*Literature source*	*Collections source*	*Author fieldwork*
Systena OM sp. 2				DGF 2010
Systena OM sp. 3			UCB	
Systena OM sp. 4			UCB	
Systena OM sp. 5			UCB	
Systena OM sp. 6			UCB, USNM	
Systena OM sp. 7			UCB	
Systena OM sp. 8			UCB	
Systena OM sp. 9			BYU	
Systena OM sp. 10			UCB	
Trichaltica zapotensis (Jacoby)			BYU, CDFA, TAMU, UCB, USNM	
Trichaltica OM sp. 1			CDFA, TAMU	DGF 2010
Walterianella inscripta (Jacoby)	OAX, SLP, VER	Jacoby 1886	MCZ, USNM	
Walterianella sublineata (Jacoby)	OAX, TAB, VER, YUC	Jacoby 1886	MCZ, USNM, UCD	
Walterianella OM sp. 1			UCB	
New Genus A ? OM sp. 1			USNM	
New Genus B ? OM sp. 1			UCB	

Mexican States (Abbreviations):

Aguascalientes (AGS); Baja California (BC); Baja California Sur (BCS); Campeche (CAMP); Chiapas (CHIS); Chihuahua (CHIH); Coahuila (COAH); Colima (COL); Distrito Federal (DF); Durango (DGO); Guanahuato (GTO); Guerrero (GRO); Hidalgo (HGO); Jalisco (JAL); Mexico (MEX); Michoacan (MICH); Morelos (MOR); Nayarit (NAY); Nuevo Leon (NL); Oaxaca (OAX); Puebla (PUE); Queretaro (QRO); Quintana Roo (QROO); San Luis Potosi (SLP); Sinaloa (SIN); Sonora (SON); Tabasco (TAB); Tamaulipas (TAMPS); Tlaxcala (TLAX); Veracruz (VER); Yucatan (YUC); Zacatecas (ZAC).

Appendix References

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